
The Penn State Center for Nanotechnology Education and Utilization (CNEU) is the home of the Pennsylvania Nanofabrication Manufacturing Technology (NMT) Partnership, and the NSF Advanced Technology Education (ATE) Center for Nanofabrication Manufacturing Education. It is also the Penn State home of the NSF National Nanotechnology Infrastructure Network (NNIN), the national NSF nanotechnology resource for enabling academic and industry R&D.

The CNEU Mission:
The CNEU is dedicated to research, development, and education across all aspects of micro- and nanotechnology. The Center resources are focused on addressing the incorporation of nanotechnology into secondary education, into post-secondary education, and into industry applications.

CNEU – Highlights of Upcoming Activities:

2007 NNIN RET Program: During the summer of 2007, the Penn State National Nanotechnology Infrastructure Network site in conjunction with the Penn State Science Education Department will again be offering teachers (in-service and pre-service) the opportunity to experience the excitement of nanotechnology research and to share this experience in their classrooms and with their peers. This program will also be offered to teachers (in-service and pre-service) by four other NNIN sites: Georgia Institute of Technology, Harvard University, Howard University, and the University of California Santa Barbara. Some of the objectives of this program are to assist a diverse group of science teachers in understanding and communicating the importance of using inquiry-based methods to solve problems by doing research in nanotechnology and to establish a long-term mentorship support group of teachers who will become advocates for nanotechnology education and careers. More detailed information on this program and application information can be accessed at http://www.cneu.psu.edu/neNewsEventsRETAnnounce.html.

Capstone Semester Update: The Spring 2007 capstone semester is presently in the full swing. Eighteen students are presently on track to complete this semester’s work in early May 2007. Registrations are still being accepted for the summer 2007 capstone which will begin on May 21, 2007. Registration for the fall 2007 and spring 2007 capstone semesters are presently being accepted.

Hands-On Nanofabrication Workshop for Educators: Registrations are still being accepted for the May 15-17, 2007, three-day Hands-On Nanofabrication Workshop for Educators. Participants will learn about the growing applications of nanotechnology in many industries including the biotechnology, MEMs, optoelectronics, chemical and electronics industries. The basics of nanofabrication processes and tools will be covered and practiced through a combination of classroom lectures and hands-on processing labs in the class 10 clean rooms of the Penn State Nanofabrication Facility. Please contact Lisa Daub at 814-865-9635 (ldaub@engr.psu.edu) to register, or for further information.

Summer Nanotech Camps: The CNEU will again be hosting three-day Nanotechnology Introduction Camps during the summer of 2007. These Nanotech Introduction Camps, for students in 9th grade and above, are a great opportunity to learn about nanotechnology and nanofabrication. Careers are explored and educational pathways to nanofabrication careers are discussed. The agenda is designed to be interactive and fun, while still maintaining a high level of introductory level knowledge. For further information on Nanotech Camps and to make camp reservations, please contact Ms. Darlene Fink at 814-863-2955 or dfink@engr.psu.edu.

2007 NNIN REU Program: During the summer of 2007, the National Nanotechnology Infrastructure Network will host a Research Experience for Undergraduates Program (NNIN REU) from June 4 through August 12 at the nation wide university NNIN research facilities. A wide-range of engineering and science students with broad interests across disciplines focusing on nanotechnology applied for this program five deserving undergraduate students have been selected for this summer’s PSU experience. The experience will culminate with an NNIN-wide convocation which will be held at the University of California at Santa Barbara (UCSB).

NMT Partnership Industry Outreach Initiative: In collaboration with area NMT Partners, a series of Industry Outreach Meetings entitled “Competitive Modern Manufacturing through Nanotechnology” are presently scheduled or are in the planning stages at various locations across the Commonwealth in the upcoming months. The desired outcome for this initiative is to reach as many companies as possible to share: a beginning understanding of nanotechnology, the current and forecasted impact of nanotechnology upon the marketplace, and to make them aware of the nanotechnologist worker pool available to them through the NMT Partnership. Please contact Bob Ehrmann at 814-865-7558 (rehrmann@engr.psu.edu) or Darlene Fink at 814-863-2955 (dfink@engr.psu.edu) for additional information.

NMT Partnership Educational Outreach Initiative: Again, in collaboration with area NMT Partners, a series of Educational Outreach Meetings are being scheduled at NMT Partner facilities across the commonwealth of Pennsylvania. The objective of this initiative is to introduce the nanotechnology and nanotechnology education program available through NMT Partnership to as many students as possible at NMT Partner institutions. Please contact Bob Ehrmann at 814-865-7558 (rehrmann@engr.psu.edu) or Darlene Fink at 814-863-2955 (dfink@engr.psu.edu) for additional information.
CNEU Program Highlights for February – March 2007

University Day at Fairchild Semiconductor: Bob Ehrmann and five NMT Capstone Spring 2007 semester students attended a University Day at Fairchild Industries in Mountaintop, PA on March 30, 2007. Students learned about micro-nanotechnology industry applications at Fairchild and also toured this state of the art semiconductor manufacturing process facility. The students also received a briefing on the employment opportunities that Fairchild offers to its employees.

NNIN RET Participation at NSTA Meeting Amy Brunner and the four teacher participants in the 2006-07 PSU NNIN RET (Research Experience for Teachers) completed their experience by attending the National Science Teachers Association (NSTA) Annual Conference in Saint Louis, Missouri from March 28 through March 31 2007. Their experience featured a joint (5 site) NNIN presentation on importance of infusing nanotechnology into science curriculum and exhibited examples of how RET participants are using what they learned during their RET experiences within their home classrooms. Brett Criswell (Central Columbia High School) presented on behalf of the PSU NNIN site.

The 2007 NMT Winter Partners Meeting This meeting was held on February 19-20, 2007 at the Penn Stater Conference Center. Over 80 NMT Partners and special guests attended and participated in presentations and group discussions regarding the NMT Partnership. Information on the status of the partnership and future plans for the partnership were shared during this meeting. The focus of the meeting was the sharing of best practices for student recruitment and industry engagement.


Teaching Clean Room Webcast: A webcast entitled "Design and Implementation of an Educational Laboratory for Nanofabrication Manufacturing Technology" was held on Friday November 10, 2006 to introduce the new educational cleanroom at the Penn State Center for Nanotechnology Education and Utilization to a national audience. The webcast included a video tour of CNEU's new Educational Laboratory, a presentation discussing facets of the design process (including laboratory layout, equipment purchase criteria, safety, support and maintenance) and concluded with a live question and answer session. The webcast was recorded and is available for viewing at http://www.cneu.psu.edu/labwebcast.htm.

CNEU Website: The CNEU website (www.cneu.psu.edu) continues to be available as an aide to prospective students, parents, educators, counselors, and industry personnel. Highlighted website features include Nanotechnology Education Modules, Student and Industry Video testimonials, NMT Associate to Baccalaureate Pathways, and information, overviews of the NMT Partnership Capstone Semester as well as other CNEU programs and offerings. An animation entitled “Amazing Creatures with Nanoscale Features” has been added to the educational tools - activities area of the website. This animation is an introduction to microscopy, scale, and applications of nanoscale properties. It introduces some of the tools that are used by scientists to visualize samples that are smaller than what we can see with our eyes.

CNEU Outreach: During the February and March period, the Center received 209 visitors representing 11 organizations in addition to the earlier mentioned NMT Partners Meeting. Offsite and remote access presentations impacted an additional 285 individuals at 6 sites. This offsite outreach included an introduction to nanotechnology and the NMT Partnership webcast at Montgomery County Community College to area high schools and a similar webcast outreach presentation at Bethlehem Area Vocational and Technical School in partnership with Northampton Community College.

For Further Information on these Highlights or on the NMT Partnership in general, please contact:

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